I CLAIM:

1. A method for manufacturing a high-efficiency thermal conductive base board for electrical connection with an electronic component, comprising the steps of:

(a) placing a metal substrate in an electrolytic bath;

(b) oxidizing the metal substrate in the electrolytic bath to form a metal oxide layer thereon through micro-arc oxidation; and

(c) forming a plurality of conductive contacts on the metal oxide layer for electrical connection with the electronic component.

2. The method of claim 1, wherein the conductive contacts are formed through cathodic arc plasma ion plating in step (c).

3. The method of claim 1, wherein the metal substrate is made from a metal selected from the group consisting of aluminum, titanium, magnesium, zirconium, beryllium, tantalum and alloys thereof.

4. The method of claim 3, wherein the metal substrate is made from aluminum.

5. The method of claim 1, wherein the electrolytic bath includes an ammoniacal aqueous solution.

6. The method of claim 5, wherein the ammoniacal aqueous solution includes a water soluble salt that

is selected from the group consisting of phosphates, chromates, silicates, carbonates and mixtures thereof, and a conduction-aiding agent that is capable of being dissociated into acetate ions.

7. The method of claim 6, wherein the electrolytic bath consists of 2 to 6 percent by volume of the ammoniacal aqueous solution of 0.3 to 0.6 mole/liter potassium dihydrogen phosphate; 0.08 to 0.3 mole/liter potassium chromate; and acetate ions in concentrations of 0.08 to 0.5 mole/liter.

8. The method of claim 7, wherein the conduction-aiding agent is copper acetate.

9. The method of claim 1, wherein the oxidation of the metal substrate in the electrolytic bath is conducted at a temperature ranging from 0℃ to 150 ℃.

10. The method of claim 9, wherein the temperature ranges from 0℃ to 40℃.